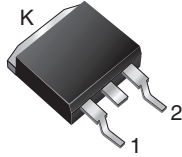


Schottky Barrier Rectifier

D²PAK (TO-263AB)

MBRB7xx


FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	7.5 A
V_{RRM}	35 V to 60 V
I_{FSM}	150 A
V_F	0.57 V, 0.65 V
T_J max.	150 °C
Package	D ² PAK (TO-263AB)
Diode variations	Single

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, and polarity protection application.

MECHANICAL DATA

Case: D²PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-E3 - RoHS-compliant, commercial grade
 Base P/NHE3_X - RoHS-compliant, AEC-Q101 qualified
 (“_X” denotes revision code, e.g. A, B, ...)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 2 whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBRB735	MBRB745	MBRB750	MBRB760	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	35	45	50	60	V
Working peak reverse voltage	V_{RWM}	35	45	50	60	
Maximum DC blocking voltage	V_{DC}	35	45	50	60	
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	7.5				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	150				
Peak repetitive reverse surge current at $t_p = 2.0\ \mu\text{s}$, 1 kHz	I_{RRM}	1.0		0.5		
Voltage rate of change (rated V_R)	dV/dt	10 000				V/ μs
Operating junction temperature range	T_J	-65 to +150				°C
Operating storage temperature range	T_{STG}	-65 to +175				



ELECTRICAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	TEST CONDITIONS		MBRB735	MBRB745	MBRB750	MBRB760	UNIT
Maximum instantaneous forward voltage	V _F ⁽¹⁾	I _F = 7.5 A	T _C = 25 °C	-	-	0.75	-	V
		I _F = 7.5 A	T _C = 125 °C	0.57	-	0.65	-	
		I _F = 15 A	T _C = 25 °C	0.84	-	-	-	
		I _F = 15 A	T _C = 125 °C	0.72	-	-	-	
Maximum reverse current at DC blocking voltage	I _R ⁽²⁾	Rated V _R	T _C = 25 °C	0.1	-	0.5	-	mA
			T _C = 125 °C	15	-	50	-	

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
(2) Pulse test: pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	MBRB	UNIT
Typical thermal resistance from junction to case	R _{θJC}	3.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	MBRB745-E3/45	1.33	45	50/tube	Tube
TO-263AB	MBRB745-E3/81	1.33	81	800/reel	Tape and reel
TO-263AB	MBRB745HE3_A/P ⁽¹⁾⁽²⁾	1.33	P	50/tube	Tube
TO-263AB	MBRB745HE3_A/I ⁽¹⁾⁽²⁾	1.33	I	800/reel	Tape and reel

Note

- (1) AEC-Q101 qualified
(2) 35 V and 50 V device available in AEC-Q101 qualified only

RATINGS AND CHARACTERISTICS CURVES ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)

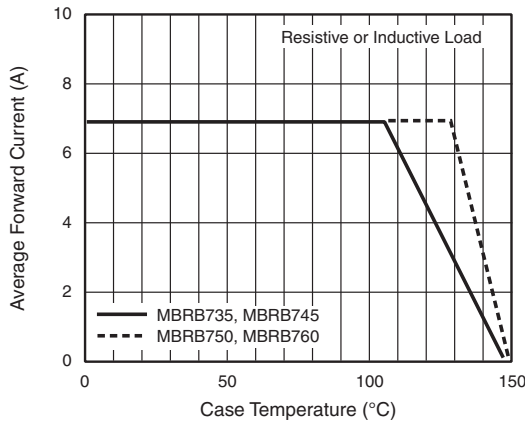


Fig. 1 - Forward Current Derating Curve

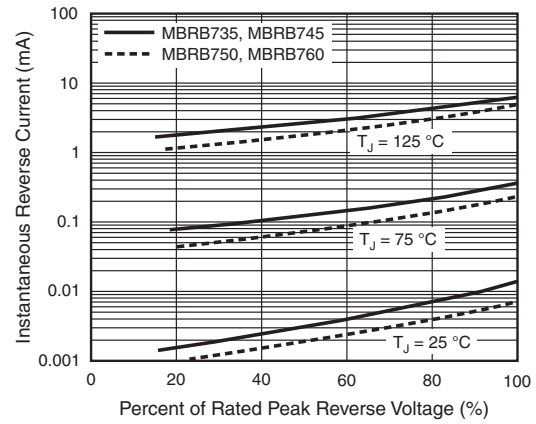


Fig. 4 - Typical Reverse Characteristics

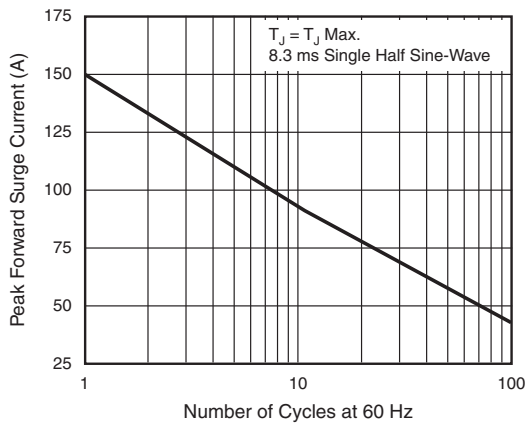


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

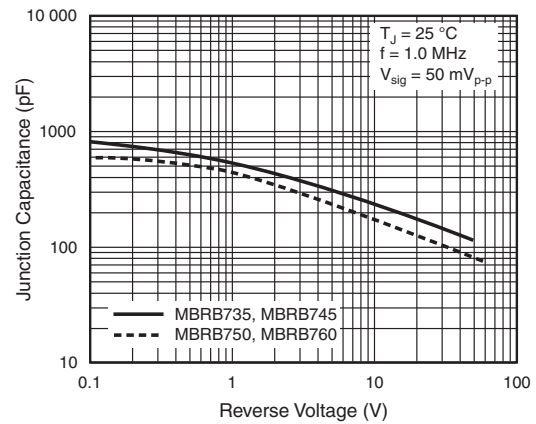


Fig. 5 - Typical Junction Capacitance

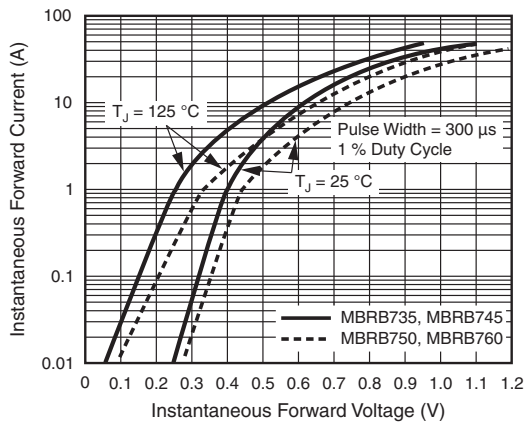


Fig. 3 - Typical Instantaneous Forward Characteristics

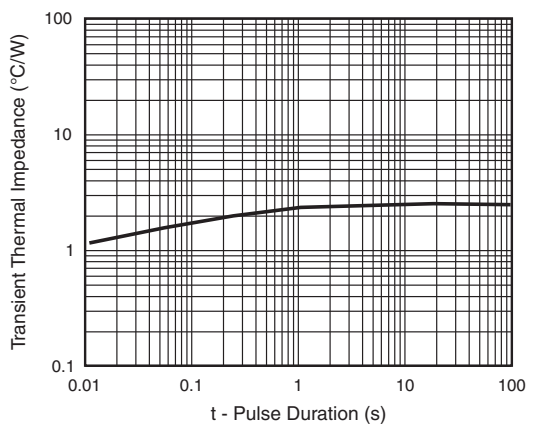
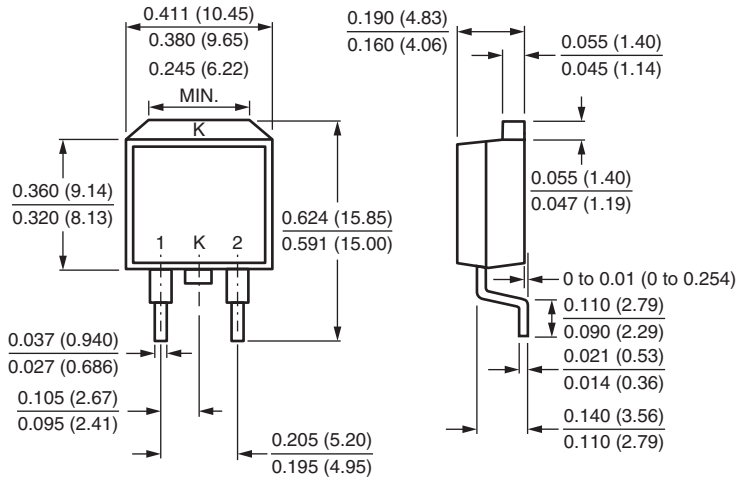


Fig. 6 - Typical Transient Thermal Impedance

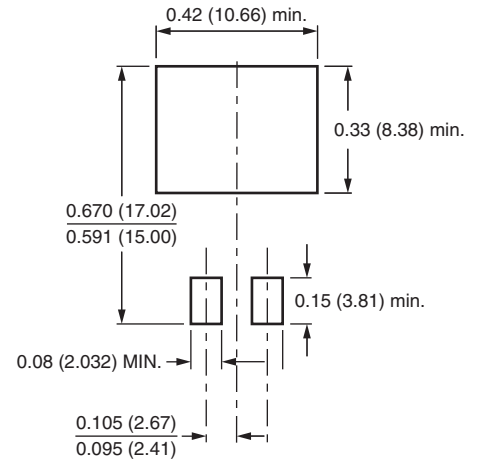


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout





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